

# Repair Instruction T65, Electrical

## by Toko (tok@gsm-free.org)

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# 1 Appearance Problems

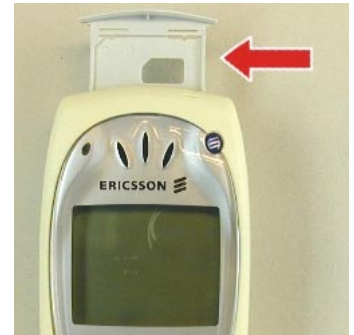
- Make a general visual inspection for oxidation or corrosion from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.
- Check the general condition of the system connector (*Fig.1*). If necessary, clean or replace the system connector.
- Check that the SIM-holder is not mechanically damaged (*Fig.2 and Fig.3*). If necessary, replace the SIM drawer or/and SIM holder or handle the unit on according to the local company directives.
- Check the rear and the front covers for cracks and check that both ends fit correctly. If necessary, replace the rear and/or the front cover or handle the unit on according to the local company directives.
- If the fault still remains handle the unit on according to the local company directives.



*Fig.1*



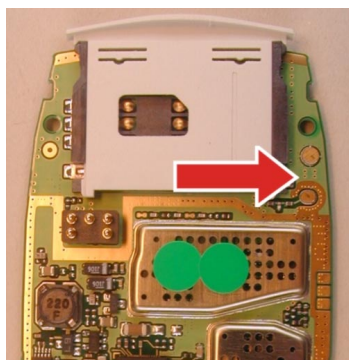
*Fig.2*



*Fig.3*

## 2 Network Problems

- Make a general visual inspection for oxidation or corrosion from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.
- Insert a SIM card and switch the phone on. Try to make a call. If there are any problems clean the contact surface on the PCB (*Fig. 1*) and replace the rear cover with antenna. Try to make a call again.
- If the fault still remains, put the old rear cover with antenna back in the phone and handle the unit on according to the local company directives.



*Fig. 1*

### 3 On/Off Problems

- Try to switch the phone on with its battery.
- If the phone starts with its battery, switch it off and connect a charger in the system connector.  
If the phone starts with the charger, there are probably no On/Off problems with it.  
If the phone does not start with the charger, see chapter *Capacity/Charging Problems*.
- If the phone does not start with its battery, connect a charger in the system connector.

If the phone starts with charger (illumination and display turn on) and indicate charging check the keyboard and the dome switch for malfunction (*Fig. 1*). If necessary, replace the keyboard and/or the dome assembly or handle the unit on according to the local company directives.

If the phone does not start with the charger but indicate charging (red top diode lights) the battery is probably deeply discharged. After 1- 15 minutes of charging the phone is supposed to start (illumination and display turns on). Charge the battery fully.

If the phone does not start (illumination and display does not turn on) after 15 minutes or if the phone does not start with the charger and does not indicate charging, take out the battery.

Check that the battery contact surface is free from dust/dirt and mechanical damage (*Fig.2* ). Clean the battery contacts surface if necessary.

Check the battery connector for dirt/mechanical damage (*Fig. 3*). If necessary, clean or replace the battery connector.

Put the battery back in the phone, connect a charger in the system connector and try again.

If the fault remains replace the battery to one with known function and start from beginning (Try to switch on the phone...).

- Make a general visual inspection for corrosion or oxidation from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.
- If the fault remains, try to upgrade the phone with the latest software.
- If the fault still remains, handle the unit on according to the local company directives.



Fig. 1

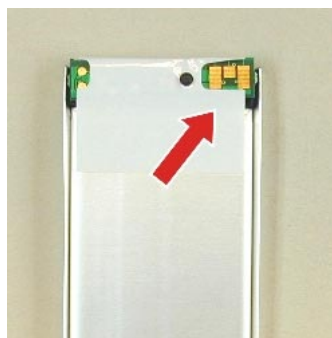


Fig. 2

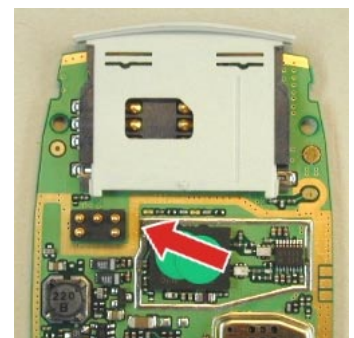


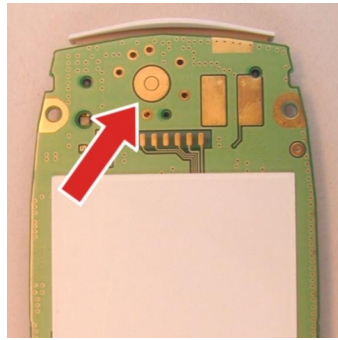
Fig. 3

## 4 Audio Problems

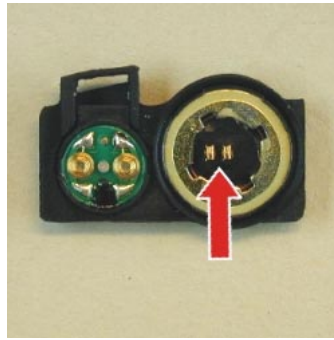
- Make a general visual inspection for corrosion or oxidation from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.
- Make a call to another phone and check if it is the microphone or the earphone that causes the audio problem.  
Another way of testing the earphone and microphone is to use the service tests in the software, see chapter 12. *Service functions in the software*.  
Choose: 3. Service tests / 6. Earphone. While a key is pressed a tone should be heard from the earphone.  
Choose: 3. Service tests / 7. Microphone. Your voice should be heard in the earphone without delay when you are speaking in the microphone.

If the customer complains about handsfree problem, connect a handsfree and test handsfree function.

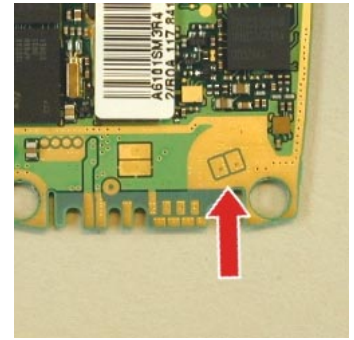
- If the earphone causes problem, check the earphone connection pads on the board for dirt/mechanical damage (*Fig. 1*). If necessary, clean the pads.  
Check the earphone for dirt/mechanical damage (*Fig. 2*). If necessary clean the earphone connector or replace the earphone.  
When the earphone is replaced the earphone volume should be checked. If it is necessary, change the earphone parameters with the service tests in the software, see chapter 12. *Service functions in the software*.  
Choose: 2. Service settings / 3. Select speaker/Reset 1.
- If the microphone causes problem, check the microphone connection pads on the board for dirt/mechanical damage (*Fig. 3*). If necessary, clean the pads.  
Check the microphone connector for dirt/mechanical damage (*Fig. 4*). If necessary replace the microphone.  
When the microphone is replaced the microphone volume should be checked. If it is necessary, change the microphone parameters with the service tests in the software, see chapter 12. *Service functions in the software*.  
Choose: 2. Service settings / 2. Select microphone /Reset 1.
- If the phone has handsfree problem, check the system connector for dirt/mechanical damage (*Fig. 5*). If necessary, clean or replace the system connector.
- If the fault still remains handle the unit on according to the local company directives.



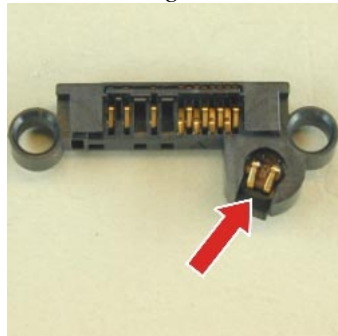
*Fig. 1*



*Fig. 2*



*Fig. 3*



*Fig. 4*



*Fig. 5*

## 5 Display/Illumination Problems

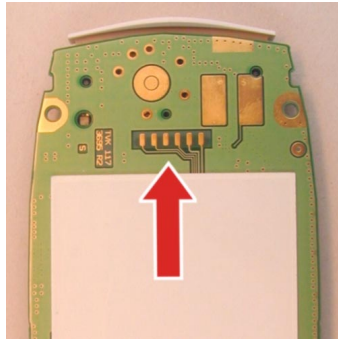
- Make a general visual inspection for corrosion or oxidation from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.
- Switch the phone on and press some buttons. Check the display and the illumination. The illumination is lightened when the phone starts in ~20 seconds if Settings/5.Display/1.Light/Automatic is selected.  
Another way of testing the display and illumination is to use the service tests in the software, see chapter 12. *Service functions in the software*.  
Choose: 3. Service tests / 1. Display. Different contrasts are shown. Check that no rows or pixels are missing.  
Choose: 3. Service tests / 2. LED/illumination. The illumination will switch on and off.
- If all the segments (characters) are missing, check that the display contact surface on the PCB is free from dirt/dust (*Fig. 1*). If necessary clean it.  
Check the display elastomer for dirt/mechanical damage (*Fig. 2*) and replace it, if necessary.

If the fault still remains, replace the display.

When the display is replaced the contrast should be checked. If it is necessary, change the contrast with the service tests in the software, see chapter 12. *Service functions in the software*.

Choose: 2. Service settings / 1.Contrast. Check the test pattern and change the contrast with the arrow keys or numbers on the keyboard. The settings are stored with the key "Yes".

- If some of the segments (characters) are missing replace the display.  
When the display is replaced the contrast should be checked. If it is necessary, change the contrast with the service tests in the software, see chapter 12 *Service functions in the software*.  
Choose: 2. Service settings / 1.Contrast. Check the test pattern and change the contrast with the arrow keys or numbers on the keyboard. The settings are stored with the key "Yes".
- If the contrast is bad try to change the contrast with the service tests in the software, see chapter 12 *Service functions in the software*.  
Choose: 2. Service settings / 1.Contrast. Check the test pattern and change the contrast with the arrow keys or numbers on the keyboard. The settings are stored with the key "Yes".  
If the fault still remains replace the display and change the contrast with the service tests in the software, if necessary.
- If the illumination is missing check if the illumination screw is loose or missing (*Fig. 3*).  
If necessary, tighten or replace screw.  
If the fault still remains replace the dome assembly.
- If the fault still remains handle the unit on according to the local company directives.



*Fig. 1*



*Fig. 2*



*Fig. 3*

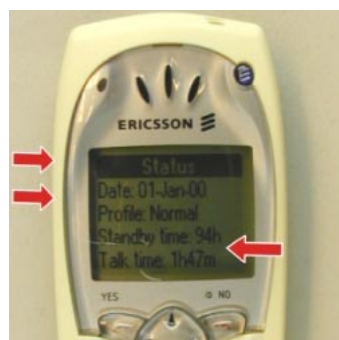


## 6 Capacity/Charging Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.
- Insert a SIM card and switch the phone on. Wait until the phone gets Serv. Check the standby time and talk time in the status menu using the volume button (*Fig. 1*).
- Connect a charger to the phone. When the phone starts to indicate charging (and shows the message "Ericsson optimized charging" for a while), let the battery be charged for at least another 15 minutes. Check the standby time and talk time in the status menu using the volume button (*Fig. 1*), again. If the standby and talk time has increased, there are no charging problems.
- If the phone shows "Alien battery" instead of "Ericsson optimized charging", open the phone and check that the battery contact surface is free from oxidation and corrosion (*Fig. 3*). If necessary, clean the contact surface on the battery and the battery connector. If the fault still remains replace the battery. If the fault still remains put the old battery back in the phone and handle the unit on according to the local company directives.
- If the phone does not indicate charging, check the system connector for dirt/mechanical damage (*Fig.2*). If necessary, clean or replace the system connector. Check that the battery contact surface is free from oxidation and corrosion (*Fig. 3*). If necessary, clean the contact surface on battery and battery connector.
- If the phone does not indicate charging, does not start with On/Off - button or can not reset hardware by 10 seconds pressed Off – button, check the system connector for dirt/mechanical damage (*Fig.2*). If necessary, clean system connector contact area or replace the system connector.

**NOTE!** Remove and refit the battery.

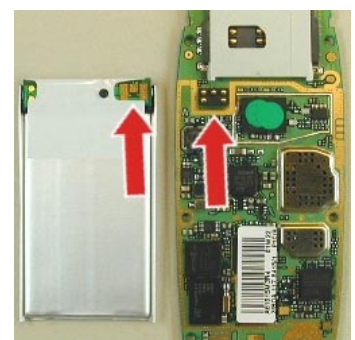
- If the fault still remains handle the unit on according to the local company directives.



*Fig. 1*



*Fig. 2*



*Fig. 3*

## 7 SIM Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.
- Test the phone with a SIM card with known function.  
If the display shows “Insert correct card” or “Wrong card”, handle the unit on according to the local company directives.  
If the display shows “Insert card” there is a SIM problem.
- Check the function of the SIM holder. If necessary, clean or replace the complete SIM holder or just the SIM drawer.
- If the fault still remains handle the unit on according to the local company directives.

## 8 Key Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.
- With the phone on and inserted SIM, press all of the buttons. Sound should be heard from the buzzer if Settings/1.Sounds&Alerts/8.Key Sound/Click (or Tone) is selected. Numbers shall appear in the display.  
Another way of testing the keyboard is to use the service tests in the software, see chapter 12. *Service functions in the software*.  
Choose: 3. Service tests / 3. Keyboard. The pressed key is shown in the display and a click is heard (even if it not is selected phone settings).  
Check that the mechanical response, when the keys are pressed, feels normal. If necessary, replace the keyboard and/or the dome assembly.
- With the phone on, press both of the volume buttons (*Fig. 1*). “Status” should be shown in the display.  
Another way of testing the volume button is to use the service tests in the software, see chapter 12. *Service functions in the software*.  
Choose: 3. Service tests / 3. Keyboard. SideUp or SideDown is shown in the display and a click is heard (even if it not is selected phone settings).  
Check that the mechanical response, when the keys are pressed, feels normal.  
If necessary clean the contact surface on the PCB (*Fig. 2*). If necessary replace the volume switch and/or volume button.
- If the fault still remains handle the unit on according to the local company directives.

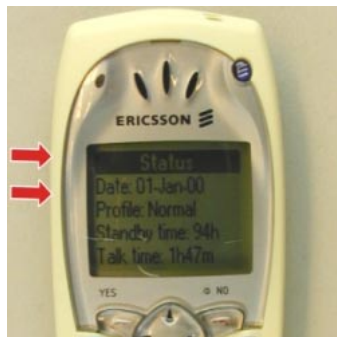


Fig. 1

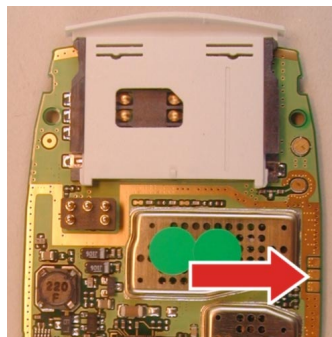
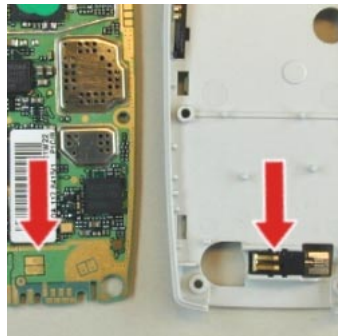


Fig. 2

## 9 Alert Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.
- Insert an SIM-card and switch the phone on. In Settings menu / 1.Sounds & alerts / 3.Vibrating alert set Vibrator ON. Check that the phone vibrates when the settings are stored.  
Another way of testing the vibrator is to use the service tests in the software, see chapter 12. *Service functions in the software*.  
Choose: 3. Service tests / 5. Vibrator. When any key is pressed the vibrator works a couple of times.  
Check that the vibrator connector and the PCB connector surface are free from dust/dirt (*Fig. 1*). If necessary, clean the connector or replace the vibrator.
- If the buzzer signal is too low when maximum ring level is selected, replace the buzzer assembly (*Fig. 2*).  
Another way of testing the buzzer is to use the service tests in the software, see chapter 12. *Service functions in the software*.  
Choose: 3. Service tests / 4. Buzzer. Ring volume can be selected from zero to six with the arrows or the numbers.
- If the fault still remains handle the unit on according to the local company directives.



*Fig. 1*



*Fig. 2*

## 10 Data Communication Problems

- Make a general visual inspection for corrosion or oxidation due to liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit on according to the local company directives.

**NOTE!** To be able to send and receive data calls via the built-in modem in the phone, you need the appropriate computer program and a SIM that supports data transmission.

- Sending data calls must be initiated from the appropriate computer program. To send data calls you need to connect the phone to a computer via a cable and then start the computer program.
- To receiving data calls the phone must be connected to the computer via a cable and then start the computer program and you must answer the call from within the computer program (if it is not answered automatically).  
If the SIM card does not support separate voice and data numbers, the phone does not recognise the type of incoming call.  
To make possible receiving data calls choose 3. Call info / 5. Next call / 1. Next incoming /Data.
- If no communication is accomplished with system connector, check it for dirt/mechanical damage (*Fig. 1*). If necessary clean or replace the system connector.
- Try to upgrade the phone with the latest software.
- If the fault still remains handle the unit on according to the local company directives.



*Fig. 1*

## 11 Software Problems

- If there are problems with the response of the keyboard commands, spelling errors in the menu, problems with new accessories or the phone restarts/switches off/dead, upgrade the phone with the latest software.
- Checking the software revision can be done in the Service info, see chapter 12. *Service functions in the software*.  
Choose: 1. Service info / 1. SW information. The Software revision and date are shown in the display.
- If the fault still remains, handle the unit on according to the local company directives.

## 12 Service functions in the software

In the software of the phone there are built in service functions that allows testing some of functions of the phone.

They are:

1. Service info
2. Service settings
3. Service tests
4. Text labels

To use the functions press the following combination on the keyboard:

➔ \* \* \*

## 13 Revision History

Rev.	Date	Changes / Comments
A	2001-07-05	First draft
B	2001-08-06	Corrections
C	2001-08-28	Corrections after intern validation



# Part List T65, Electrical repair

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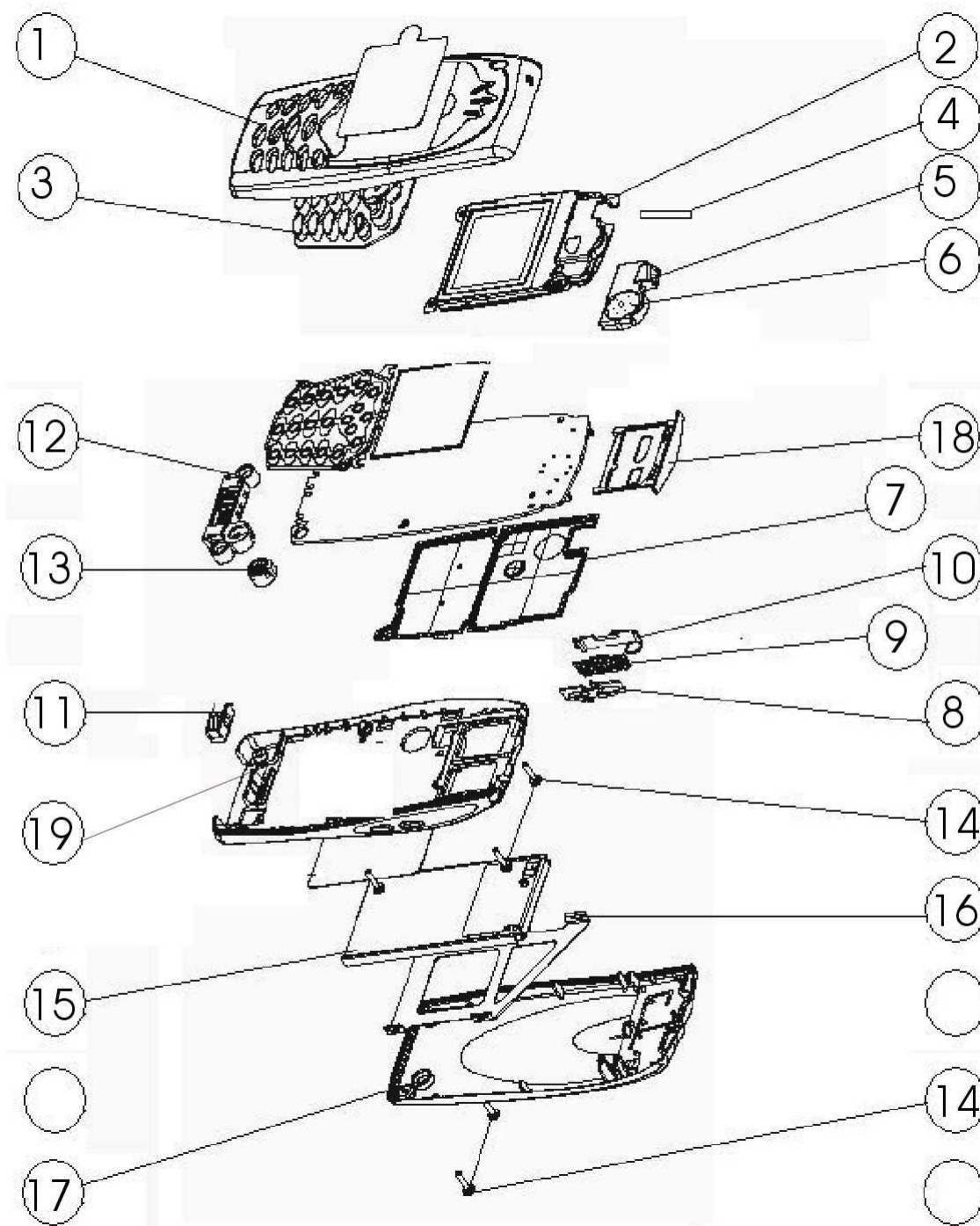
# 1 Mounting Drawings

1078- the Mounting drawings show the components position on the printed board.  
The Mounting drawings can be found in document 1078-2/FEA 209 544/62.

Board Number	Mounting Drawing
2/ROA 117 8415/1 P1E	1078-2/ROA 117 8415/1 Rev. B

## 2 Exploded View

### 2.1 T65



## 3 Component List

### 3.1 Mechanical Parts T65

- Contains mechanical parts.  
Pos. number refers to the Exploded View.  
Parts available to order will be found in the Web Shop.

Pos.	Description	Part Number	Comments
1	Front Assembly Cosmic Blue	SXK 109 4284/2	
1	Front Assembly Stardust Yellow	SXK 109 4284/3	
1	Front Assembly Polar Blue	SXK 109 4284/4	
2	LCD Retainer Sub Assy	SXK 109 4286	
3	Keymat Latin	SXA 214 3027/2	
3	Keymat Chinese	SXA 214 3027/3	
3	Keymat Arabic	SXA 214 3027/4	
3	Keymat Hebrew	SXA 214 3027/5	
4	Zebra /Elastomeric strip	SXA 104 9452	
5	Buzzer boot assembly	SXK 109 4360/1	
6	Loudspeaker	RLE 908 05	
7	Secondary Shielding Form	SXK 109 4567	
8	Side Button	SXA 214 3099	
9	Side Switches	RMD 955 103/1	
10	Side Switch Support	SXA 214 3779	
11	Vibrator Assembly	SXA 214 3100	
12	System Connector	RNV 403 085/1	
13	Microphone assembly	RLC 509 150/2	
14	Screws	SXA 214 3627	
15	Battery Sub Assembly	BKB 191 339	
16	Battery Retainer	SXA 214 3103	
17	Rear Assembly/Antenna	SXK 109 4288/2	
18	SIM Drawer	RNK 860 137/11	
	Dome Assembly	SXA 214 3105	
19	Chassis Moulding	SXA 214 3756	

## 3.2 2/ROA 117 8415/1

- Contains only components that are possible to replace.  
Pos. number refers to the components position number on the board.  
Parts available to order will be found in the Web Shop.

2/ROA 117 8415/1			
Pos.	Description	Part Number	Comments
C760	Capacitor	RJC 463 3021/22	Can be damaged when replacing X100.
C761	Capacitor	RJC 463 3022/1	Can be damaged when replacing X100.
H650	Light Emitting Diode	RKZ 433 904/1	Can be damaged when replacing J702.
J702	Component holder	RNK 860 137/1 P1B	
R740	Resistor	REP 622 454/1	Can be damaged when replacing X100.
X100	Connector	RPT 403 309/1	

## 4 Revision History

Rev.	Date	Changes / Comments
A	2001-09-14	